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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,576	12/31/2003	D. Amnon Silverstein	200311360-1	8975

22879 7590 09/19/2007

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER	
SAUNDERS, PAUL	
ART UNIT	**PAPER NUMBER**
2609	

MAIL DATE	DELIVERY MODE
09/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/749,576	SILVERSTEIN ET AL.	
	Examiner	Art Unit	
	Paul Saunders	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/02/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-6** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 6,091,451 A to Farr et al. ("Farr").

As to **claim 1**, Hunter discloses a camera (figs. 1-4) comprising: an image device configured to receive light of a subject (col. 2 lines 10-20) and to provide an image representation of the subject from the light (col. 2 lines 51-54).

Hunter does not expressly disclose wherein the image representation is usable to generate a visible image of the subject; a lens system optically coupled with the image device and configured to direct the light to the image device (fig. 1); wherein the image device is configured to generate the image representation while having a first sensitivity to a first wavelength of light and a second sensitivity to a second wavelength of light different than the first sensitivity; and a filter optically coupled with the lens system and corresponding to the image device wherein the filter is configured to pass a first quantity of photons having

the first wavelength of light for the subject and a second quantity of photons having the second wavelength of light for the subject.

Farr discloses wherein the image representation is usable to generate a visible image 215 of the subject 210 (fig. 8, col. 5 lines 51-57); a lens system 212 optically coupled with the image device 213 and configured to direct the light to the image device 213 (fig. 8, 10, col. 5 lines 30); wherein the image device 213 is configured to generate the image representation while having a first sensitivity to a first wavelength of light and a second sensitivity to a second wavelength of light different than the first sensitivity (fig. 3, col. 5 lines 29-35 – with a color filter placed in front of each pixel of the sensor 213 as shown in fig. 3 then green pixels being a first wavelength are a first sensitivity and blue pixels being a second wavelength are a second sensitivity of the image device); and a filter 310, 500 optically coupled with the lens system and corresponding to the image device (fig. 10, col. 5 lines 30) wherein the filter 310, 500 is configured to pass a first quantity of photons having the first wavelength of light for the subject and a second quantity of photons having the second wavelength of light for the subject (fig. 9, 10, 11, 12 col. 5 lines 30, col. 5 lines 61-67, col. 6 lines 1-67+ – the filter 310 allowing only the color green, being the first wavelength, to pass through stop 402 and stop 403 being a first quantity of photons and allowing the color blue, being the second wavelength, to pass through stop 403 and not stop 402 being a second quantity of photons).

Hunter and Farr are analogous art because they are from the same field of endeavor namely camera systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture or diaphragm (Hunter col. 2 line 40-50) and incorporate the color dependant aperture as taught above by Farr. The motivation would have been to "[reduce] color aliasing effects" of the camera system (Farr col. 3 lines 27-30).

Therefore it would have been obvious to combine Hunter and Farr to obtain the above modifications.

As to **claim 2**, Hunter further discloses the camera of claim 1 wherein the image device 16 comprises an electrical sensor configured to provide the image representation in the form of electrical data (col. 2 lines 10-20, 51-54).

As to **claim 3**, Farr further discloses the camera of claim 2 wherein the electrical sensor 213 comprises a plurality of pixels (fig. 3, col. 5 lines 46-48), and the electrical sensor 213 is configured to provide the electrical data corresponding to a mosaic of different wavelengths for the pixels comprising the first and the second wavelengths.

The same motivation is used here as is used in the parent claim.

As to **claim 4**, Hunter further discloses the camera of claim 1 wherein the image device comprises film to provide the image representation (col. 3 lines 20-22).

As to **claim 5**, Farr further discloses the camera of claim 1 wherein the filter comprises a plurality of aperture stops of different sizes, wherein a first of the aperture stops 402 is configured to pass light of the first wavelength (green) and a second of the aperture stops 403 is configured to pass light of the second wavelength (blue), wherein the first of the aperture stops has a radius greater than a radius of the second of the aperture stops (fig. 11 – radius of stop 402 is larger than radius of stop 403).

The same motivation is used here as is used in the parent claim.

As to **claim 6**, Farr further discloses the camera of claim 5 further comprising a third of the aperture stops 504 having a radius smaller than a radius of the second of the aperture stops 503 (fig. 12 – stop 504 has smaller radius than stop 503) and comprising the only one of the plurality of the aperture stops configured to pass infrared light (col. 6 lines 25-32, 61-67 – if first stop 502 where to allow one specific color such as blue and second stop 503 where to allow one specific color green then like the clear aperture 118 with stop 122, third stop 504 likewise is configured to pass infrared light, and would be the only one).

The same motivation is used here as is used in the parent claim.

3. **Claim 7** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 6,091,451 A to Farr et al. ("Farr") as applied to claim 1 above, and further in view of U.S. Patent No. 4,687,926 to Plummer.

As to **claim 7**, it has not been expressly disclosed yet: the camera of claim 1 wherein the light having the first wavelength comprises blue light and the light having the second wavelength comprises non-blue light.

Plummer discloses the camera of claim 1 wherein the light having the first wavelength comprises blue light and the light having the second wavelength comprises non-blue light (fig. 1, 2, col. 2 lines 54-59, col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light being the first wavelength and the second zone or stop 20 passes green light being the second wavelength and also non-blue).

Farr and Plummer are analogous art because they are from the same field of endeavor namely color dependant apertures.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture to assign blue as the first wavelength as taught above by Plummer. The motivation would have been to obtain the desired result from the electrical sensor (Plummer col. 2 lines 52-53, col. 3 lines 26-33).

Therefore it would have been obvious to combine Hunter, Farr and Plummer to obtain the above modifications.

4. **Claims 8-14** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 5,965,875 A to Merrill, U.S. Patent No. 6,091,451 A to Farr et al. ("Farr") and U.S. Patent No. 4,687,926 to Plummer.

As to **claim 8**, Hunter discloses a camera (figs. 1-4) comprising: an electrical sensor configured to receive light of a subject (col. 2 lines 10-20) and to provide electrical data corresponding to the received light (col. 2 lines 51-54).

Hunter does not expressly disclose wherein the electrical sensor comprises silicon having a first coefficient of absorption for light having a first wavelength and a second coefficient of absorption for light having a second wavelength, wherein the first coefficient of absorption is larger than the second coefficient of absorption and the first wavelength is smaller than the second wavelength; and a filter optically coupled with the electrical sensor and configured to pass a first quantity of photons having the first wavelength of light for the given subject and a second quantity of photons having the second wavelength of light for the subject, wherein the second quantity of photons is less than the first quantity of photons.

Merrill discloses wherein the electrical sensor comprises silicon (col. 4 lines 34, 48-49) having a first coefficient of absorption for light having a first wavelength and a second coefficient of absorption for light having a second wavelength, wherein the first coefficient of absorption is larger than the second coefficient of absorption and the first wavelength is smaller than the second wavelength (fig. 5, 6, col. 4 lines 33-67, col. 5 lines 1-7 – blue light, being the first wavelength, has a corresponding first coefficient of absorption for light in silicon, and green light, a second wavelength which is larger than the first wavelength, also has a corresponding second coefficient).

Hunter and Merrill are analogous art because they are from the same field of endeavor namely electrical sensors for imaging.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous imaging device comprising an electrical sensor to use the vertically stacked photodiode electrical sensor taught above by Merrill. The motivation would have been to reduce aliasing effects of the camera system (Merrill col. 3 lines 19-22).

Farr discloses a filter 310, 500 optically coupled with the electrical sensor (fig. 9, 10, 11, 12 col. 5 lines 30).

Hunter and Farr are analogous art because they are from the same field of endeavor namely camera systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture or diaphragm (Hunter col. 2 line 40-50) and incorporate the aperture optically coupled with the electrical sensor as taught above by Farr. The motivation would have been to "[reduce] color aliasing effects" of the camera system (Farr col. 3 lines 27-30).

Farr does not expressly disclose a filter configured to pass a first quantity of photons having the first wavelength of light for the given subject and a second quantity of photons having the second wavelength of light for the subject wherein the second quantity of photons is less than the first quantity of photons.

Merrill further discloses, the electrical sensor having less sensitivity to blue light (fig. 8).

Plummer discloses a filter configured to pass a first quantity of photons having the first wavelength of light for the given subject and a second quantity of photons having the second wavelength of light for the subject wherein the second quantity of photons is less than the first quantity of photons (fig. 1, 2, col. 2 lines 54-59, col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light being the first wavelength and a first quantity and the second zone or stop 20 passes blue light also part of the first quantity and green light being the second wavelength and a second quantity wherein with more blue light not being blocked and green light during the first stop the second quantity is less than the first).

Farr and Plummer are analogous art because they are from the same field of endeavor namely color dependant apertures.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture to pass a higher quantity of a lower wavelength of light blue, then a higher wavelength of light green as taught above by Plummer. The motivation would have been to obtain the desired result from the electrical sensor (Plummer col. 2 lines 52-53, col. 3 lines 26-33).

Therefore it would have been obvious to combine Hunter, Merrill, Farr and Plummer to obtain the above modifications.

As to **claim 9**, Merrill further discloses the camera of claim 8 wherein the electrical sensor comprises semiconductive material (col. 2 lines 16-18, col. 3

lines 28-29 – fabricated with CMOS memory process) having the first coefficient of absorption with respect to blue light (fig. 5, col. 5 lines 1-7).

The same motivation is used here as is used in the parent claim.

As to **claim 10**, Farr further discloses the camera of claim 8 wherein the electrical sensor comprises a charge coupled device (col. 5 line 45).

The same motivation is used here as is used in the parent claim.

As to **claim 11**, Farr further discloses the camera of claim 8 wherein the filter comprises a plurality of aperture stops of different sizes (fig. 12 – stops 502, 503 and 504 vary in size), wherein a first of the aperture stops 502 is configured to pass light of the first wavelength and a second of the aperture stops 503 is configured to pass light of the second wavelength, wherein the first of the aperture stops 502 is greater than the second of the aperture stops 503.

The same motivation is used here as is used in the parent claim.

As to **claim 12**, Farr further discloses the camera of claim 11 wherein the aperture stops are concentric (fig. 12 – each stop shares a common center).

The same motivation is used here as is used in the parent claim.

As to **claim 13**, Farr further discloses the camera of claim 12 further comprising a third of the aperture stops 504 smaller than the second of the aperture stops 503 (fig. 12 – stop 504 is smaller than stop 503) and the only one of the plurality of the aperture stops configured to pass infrared light (col. 6 lines 25-32, 61-67 – a clear aperture allowing infrared to pass and is the only one).

The same motivation is used here as is used in the parent claim.

As to **claim 14**, Merrill further discloses the camera of claim 8 wherein the electrical sensor comprises a plurality of pixels (fig. 9, 10, col. 2 lines 10-15), and the electrical sensor is configured to provide the electrical data corresponding to a mosaic of different wavelengths for the pixels (fig. 7, 9, 10, col. 6 lines 30-65 – the mosaic being the colors red, green and blue at each pixel location).

The same motivation is used here as is used in the parent claim.

5. **Claims 15-20** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 6,091,451 A to Farr et al. ("Farr") and U.S. Patent No. 4,687,926 to Plummer.

As to **claim 15**, Hunter discloses an optical system (figs. 1-4), comprising: lens means for receiving light (col. 2 lines 10-20) having a plurality of wavelengths and for directing the light to an image means (col. 2 lines 51-54).

Hunter does not expressly disclose a filter means optically coupled with the lens means and comprising means for providing a first aperture stop having a first radius for blue light and a second aperture stop having a second radius different than the first radius for non-blue light, wherein the first radius of the first aperture stop is larger than the second radius of the second aperture stop.

Farr discloses a filter 310, 500 means optically coupled with the lens means 301-307 (fig. 8, 10, 11, 12) and comprising means for providing a first aperture stop 402 having a first radius and a second aperture stop 403 having a second radius different than the first radius, wherein the first radius of the first

aperture stop is larger than the second radius of the second aperture stop (fig 11).

Hunter and Farr are analogous art because they are from the same field of endeavor namely camera systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture or diaphragm (Hunter col. 2 line 40-50) and incorporate the multiple stop aperture as taught above by Farr. The motivation would have been to "[reduce] color aliasing effects" of the camera system (Farr col. 3 lines 27-30).

Farr does not expressly disclose a filter comprising first and second stops for blue light and non-blue light.

Plummer discloses a filter comprising means for providing a first aperture stop having a first radius for blue light and a second aperture stop having a second radius different than the first radius for non-blue light, wherein the first radius of the first aperture stop is larger than the second radius of the second aperture stop (fig. 1, 2, col. 2 lines 54-59, col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light being the first wavelength and the second zone or stop 20 passes green light being the second wavelength).

Farr and Plummer are analogous art because they are from the same field of endeavor namely color dependant apertures.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous multiple stop aperture to assign the aperture

stop having the larger radius to filter blue light and the smaller aperture stop radius to filter non-blue light as taught above by Plummer. The motivation would have been to obtain the desired result from the electrical sensor (Plummer col. 2 lines 52-53, col. 3 lines 26-33).

Therefore it would have been obvious to combine Hunter, Farr and Plummer to obtain the above modifications.

As to **claim 16**, Farr further discloses the system of claim 15 further comprising the image means comprising means for receiving light of a subject from the lens means and for providing an image representation of the subject 210 (fig. 10, col. 5 lines 44-50) usable to generate a visible image 215 of the subject 210 (fig. 8, col. 5 lines 51-57).

The same motivation is used here as is used in the parent claim.

As to **claim 17**, Farr further discloses the system of claim 15 wherein the image means comprises means for providing the image representation comprising electrical data for a plurality of pixel locations (fig. 3, col. 5 lines 46-48) individually comprising image data for one of blue light and non-blue light (fig. 3, col. 4 lines 25-28, col. 5 lines 29-35 – at any one pixel location it is either blue light detected or non-blue light green or red).

The same motivation is used here as is used in the parent claim.

As to **claim 18**, Plummer further discloses the system of claim 15 wherein the first and the second aperture stops are configured to pass an increased

number of photons of blue light compared with non-blue light (col. 5 lines 33-37 – blue light is not being filtered like other light, thus more is allowed to pass).

The same motivation is used here as is used in the parent claim.

As to **claim 19**, Farr further discloses the system of claim 15 wherein the first and the second aperture stops are concentric (fig. 12 – each stop shares a common center).

The same motivation is used here as is used in the parent claim.

As to **claim 20**, Farr further discloses the system of claim 15 wherein the filter means further comprises a third aperture stop 504 having a third radius smaller than the second radius (fig. 12 – stop 504 is smaller than stop 503) and comprising the only one of the aperture stops for passing infrared light (col. 6 lines 25-32, 61-67 – a clear aperture allowing infrared to pass and is the only one).

The same motivation is used here as is used in the parent claim.

6. **Claims 21-23, 26-29** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 6,091,451 A to Farr et al. ("Farr") and U.S. Patent No. 5,965,875 A to Merrill.

As to **claim 21**, Hunter discloses an imaging method comprising: receiving light of a plurality of wavelengths (figs 1-4, col. 2 lines 10-13); generating a plurality of electrical signals responsive to the first and the second sensings and corresponding to quantities of sensed light having the one and the other

wavelengths (col. 2 lines 10-20, 51-54 – the one and the other wavelengths included in the electrical signal because they were not blocked by the filter).

Hunter does not expressly disclose the remainder of the claim.

Farr discloses prior to the first and the second sensings (fig. 10 – filter 310 is placed before the sensor plate to the far right of the diagram), filtering the light comprising passing photons of the light having the one and the other wavelengths (fig. 11, 12 col. 6 lines 25-32, 61-67 – stop 403 allows both wavelengths to pass), the passing comprising passing an increased number of photons of the light having the one wavelength for a given subject compared with a number of the photons of the light having the other wavelength for the given subject (fig. 10, 11, 12, col. 6 lines 33-42 – stop 402 allows only the one wavelength to pass thus allowing an increased number of photons of the one wavelength).

Hunter and Farr are analogous art because they are from the same field of endeavor namely camera systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture or diaphragm (Hunter col. 2 line 40-50) and incorporate the color dependant aperture passing a higher quantity of light of one wavelength than the other as taught above by Farr. The motivation would have been to "[reduce] color aliasing effects" of the camera system (Farr col. 3 lines 27-30).

Merrill discloses first sensing the light having one of the wavelengths at a first sensitivity (fig. 6 – blue light is sensed at a first sensitivity in the blue well being first); second sensing the light having an other of the wavelengths at a second sensitivity (fig. 6 – green light passes through the blue well sensor and then is sensed at a second sensitivity in the green well being second) greater than the first sensitivity (fig. 8 – blue light sensitivity is approximately less than green light sensitivity); .

Hunter and Merrill are analogous art because they are from the same field of endeavor namely electrical sensors for imaging.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous imaging device comprising an electrical sensor to use the electrical sensor having at least two sensing sensitivities as taught above by Merrill. The motivation would have been to reduce aliasing effects of the camera system (Merrill col. 3 lines 19-22).

Therefore it would have been obvious to combine Hunter, Farr and Merrill to obtain the above modifications.

As to **claim 22**, Merrill further discloses the method of claim 21 wherein the first and the second sensings and the generating comprise using at least one sensing device comprising silicon (col. 4 lines 34, 48-49).

The same motivation is used here as is used in the parent claim.

As to **claim 23**, Farr further discloses the method of claim 21 wherein the first and the second sensings and the generating comprise using at least one sensing device comprising a charge coupled device (col. 5 line 45).

The same motivation is used here as is used in the parent claim.

As to **claim 26**, Farr further discloses the method of claim 21 wherein the filtering comprises filtering using a filter comprising a plurality of aperture stops of different sizes (fig. 12 – stops 502, 503 and 504 vary in size), wherein a first of the aperture stops 502 is configured to pass light of the first wavelength and a second of the aperture stops 503 is configured to pass light of the second wavelength.

The same motivation is used here as is used in the parent claim.

As to **claim 27**, Farr further discloses the method of claim 26 wherein the aperture stops are concentric (fig. 12 – each stop shares a common center).

The same motivation is used here as is used in the parent claim.

As to **claim 28**, Merrill further discloses the method of claim 21 wherein the first sensing comprises sensing at a plurality of first pixels corresponding to the one wavelength and the second sensing comprises sensing at a plurality of second pixels corresponding to the other wavelength (fig. 6, 7, 9, 10, col. 6 lines 30-65 – within the array of vertically stacked photodiodes for each pixel site, each site first senses blue light being the one wavelength, then second green light being the other wavelength; the first and second group of pixels are the same in this instance).

The same motivation is used here as is used in the parent claim.

As to **claim 29**, Farr further discloses the method of claim 21 further comprising filtering infrared light providing a smaller number of photons for infrared light compared with light of the other wavelength for the given subject (fig. 12, col. 6 lines 25-32 – the clear stop 504 is the only stop allowing infrared light, while stop 503 and stop 504 allow light of the other wavelength wherein more of the other light is not blocked allowing more of the other wavelength than infrared light).

The same motivation is used here as is used in the parent claim.

7. **Claims 24-25** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 6,091,451 A to Farr et al. ("Farr") and U.S. Patent No. 5,965,875 A to Merrill as applied to claim 21 above, and further in view of U.S. Patent No. 4,687,926 to Plummer.

As to **claim 24**, Plummer discloses the method of claim 21 wherein the one wavelength is smaller than the other wavelength (fig. 1, 2, col. 2 lines 54-59, col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light being the one wavelength and the second zone or stop 20 passes green light being the other wavelength).

The same motivation is used here as is used in claim 7.

As to **claim 25**, Plummer discloses the method of claim 21 wherein the sensing the light having one of the wavelengths comprises sensing blue light and the sensing the light the other of the wavelengths comprises sensing non-blue

light (fig. 1, 2, col. 2 lines 54-59, col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light being the one wavelength and the second zone or stop 20 passes green light being the other wavelength being non-blue).

The same motivation is used here as is used in claim 7.

8. **Claims 30-31, 33-39** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 6,091,451 A to Farr et al. ("Farr") and U.S. Patent No. 4,687,926 to Plummer.

As to **claim 30**, Hunter discloses an optical filter configuration method comprising: a sensor is configured to generate electrical data responsive to received light of different wavelengths (figs 1-4, col. 2 lines 10-20, 51-54).

Hunter does not expressly disclose the remainder of the claim.

Farr discloses identifying a sensor for use with a filter (col. 4 lines 30-45); for the identified sensor, determining individual ones of a plurality of sensitivity relationships of the sensor with respect to different ones of the wavelengths of light (figs. 2, 7, 13, 14, col. 4 lines 20-30, col. 6 lines 33-60); responsive to the determining, configuring the filter to pass a first quantity of photons of a given subject for a first wavelength of light; and responsive to the determining, configuring the filter to pass a second quantity of photons of the given subject for a second wavelength of light different than the first wavelength of light (fig. 11, 12, col. 6 lines 25-67, col. 7 lines 1-4 – based on the determining, stops sizes and colors are implemented).

Hunter and Farr are analogous art because they are from the same field of endeavor namely camera systems.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture or diaphragm (Hunter col. 2 line 40-50) and incorporate the customized sensor dependant color aperture as taught above by Farr. The motivation would have been to "[reduce] color aliasing effects" of the camera system (Farr col. 3 lines 27-30).

Plummer also discloses identifying a sensor for use with a filter (col. 6 lines 65-67, col. 7 lines 1-9); and for the identified sensor, determining individual ones of a plurality of sensitivity relationships of the sensor with respect to different ones of the wavelengths of light (col. 4 33-50, col. 5 lines 44-46, 66-67, col. 6 lines 1-9) responsive to the determining, configuring the filter to pass a first quantity of photons of a given subject for a first wavelength of light; and responsive to the determining, configuring the filter to pass a second quantity of photons of the given subject for a second wavelength of light different than the first wavelength of light (figs. 3-4, col. 5 lines 65-67, col. 6 lines 1-64).

Farr and Plummer are analogous art because they are from the same field of endeavor namely color dependant apertures.

At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the previous aperture to specifically customize the filter for sensors that have low sensitivity to lower wavelengths of light as taught above

by Plummer. The motivation would have been to obtain the desired result from the electrical sensor (Plummer col. 2 lines 52-53, col. 3 lines 26-33).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Hunter, Farr and Plummer to obtain the above modifications.

As to **claim 31**, Plummer further discloses the method of claim 30 wherein the configurings comprise configuring the filter to pass an increased number of blue photons compared with respective numbers of individual colors of non-blue photons (col. 5 lines 33-37 – blue light is not being filtered like other light, thus more is allowed to pass).

The same motivation is used here as is used in the parent claim.

As to **claim 33**, Plummer further discloses the method of claim 30 wherein the configurings comprise configuring the filter to pass an increased number of blue photons compared with green photons (fig. 1, 2, col. 2 lines 54-59, col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light and the second zone or stop 20 passes green and blue light wherein an increased number of blue light is allowed to pass).

The same motivation is used here as is used in the parent claim.

As to **claim 34**, Plummer further discloses the method of claim 33 wherein the configurings comprise configuring the filter to pass an increased number of blue photons compared with red photons.

The same motivation is used here as is used in the parent claim.

As to **claim 35**, Farr further discloses the method of claim 30 further comprising configuring the filter to pass a third quantity of infrared photons for the given subject less than individual ones of the first quantity and the second quantity (fig. 12, col. 6 lines 25-32 – the clear stop 504 is the only stop allowing infrared light, while stop 503 and stop 504 allow light of the other wavelengths and not infrared light wherein less infrared light is passed).

The same motivation is used here as is used in the parent claim.

As to **claim 36**, Plummer further discloses the method of claim 30 wherein the determining comprises determining the sensor having an increased sensitivity to blue light compared with individual ones of red light and green light (fig. 2 – comparing blue light approximate overall relative sensitivity 0.3 to individual ones of red light for example at wavelength 601 the approximate relative sensitivity 0.1 is lower and likewise for green at wavelength 501 the approximate relative sensitivity 0.1 is also lower), and wherein the configurings comprise configuring the filter to pass an increased quantity of blue photons compared with individual ones of red photons and green photons (fig. 1, 2, col. 2 lines 54-59, col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light and the second zone or stop 20 passes red, green and blue light wherein an increased number of blue light is allowed to pass).

The same motivation is used here as is used in the parent claim.

As to **claim 37**, Plummer further discloses the method of claim 30 wherein the first wavelength is less the second wavelength (fig. 1, 2, col. 2 lines 54-59,

col. 3 lines 25-40, col. 4 lines 32-64 – the first zone or stop 22 passes blue light being the one wavelength and the second zone or stop 20 passes green light being the other wavelength) and the first quantity is greater than the second quantity (col. 5 lines 33-37 – blue light is not being filtered like other light, thus more is allowed to pass).

The same motivation is used here as is used in the parent claim.

As to **claim 38**, Farr further discloses the method of claim 37 wherein the filtering comprises filtering using a filter comprising a plurality of aperture stops of different sizes (fig. 12 – stops 502, 503 and 504 vary in size), wherein a first of the aperture stops 502 is configured to pass light of the first wavelength and a second of the aperture stops 503 is configured to pass light of the second wavelength (col. 6 lines 61-67 – stops can be configured as desired).

The same motivation is used here as is used in the parent claim.

As to **claim 39**, Farr further discloses the method of claim 38 wherein the aperture stops are concentric (fig. 12 – each stop shares a common center).

The same motivation is used here as is used in the parent claim.

9. **Claim 32** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,989,866 B2 to Hunter, in view of U.S. Patent No. 6,091,451 A to Farr et al. ("Farr") and U.S. Patent No. 4,687,926 to Plummer as applied to claim 30 above, and further in view of U.S. Patent No. 5,965,875 A to Merrill.

As to **claim 32**, Merrill discloses the method of claim 30 wherein the sensor comprises silicon (col. 4 lines 34, 48-49) having an increased coefficient

of absorption of blue light compared with individual ones of red light and green light (fig. 5, col. 4 lines 33-67, col. 5 lines 1-7).

The same motivation is used here as is used in claim 8.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Saunders whose telephone number is 571.270.3319. The examiner can normally be reached on Mon-Thur 8:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derrick Ferris can be reached on 571.272.3123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PS/

9/17/02

DERRICK W. FERRIS
SUPERVISORY PATENT EXAMINER